

New Claims 1 to 21

1. A process for producing a transgenic plant having a deregulated invertase activity which stimulates plant development, whereby a nucleotide sequence of an invertase inhibitor gene is obtained from a cDNA bank of a cell suspension culture or from flowers with young ovules of a plant; whereby a plant cell of a plant of the same type or variety, from which the nucleotide sequence comes or is derived, is transformed with a DNA construct containing the functionally bound nucleotide sequence of an invertase inhibitor gene with at least one regulatory unit, is cultivated and a plant regenerated, whose seeds have an increased amount of reserve material in comparison with untransformed wild-type plants.
2. A process according to claim 1, in which the regulatory unit is a promoter.
3. A process according to claim 2, in which the promoter is a constitutive or inducible promoter.
4. A process according to claim 3, in which the promoter is the CaMV35S promoter or the ubiquitin promoter or zein promoter from corn.
5. A process according to ~~any one of claims 1 to 4~~, in which the nucleotide sequence of an invertase inhibitor gene is a cDNA, a nucleotide sequence hybridising with that, or a fragment of one of the two.
6. A process according to ~~any one of claims 1 to 5~~, in which the invertase inhibitor is an apoplastic invertase inhibitor.
7. A process according to ~~any one of claims 1 to 6~~, in which the nucleotide sequence of an invertase inhibitor gene has a sense orientation or antisense orientation to the promoter.
8. A process according to ~~any one of claims 1 to 7~~, in which the DNA construct has additional regulatory units, in particular a transcription termination signal.
9. A process according to ~~any one of claims 1 to 8~~, in which the transcription termination signal comes from the NOS gene of *Agrobacterium tumefaciens*.
10. A process according to ~~any one of claims 1 to 9~~, in which the plant cell is a cell of a dicotyledonous or monocotyledonous plant.
11. A process according to claim 10, in which the plant cell is a cell from rape, sunflower, peanut, soy bean, oil palm, rice, corn, wheat, barley, oats, rye, pea, *Calendula officinalis*, *Coriandrum sativum*, *Crambe abyssinica*, *Cuphea* ssp., *Dimorphotheca pluvialis*, *Euphorbia lagascae*, *Euphorbia lathyris*, *Lesquerella grandiflora*, *Limnanthes alba*, *Linum usitatissimum*, *Lunaria annua*, *Lunaria biennis*, *Oenothera* ssp., *Ricinus communis* or *Simmondsia chinensis*.

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12. A process according to ~~any one of claims 1 to 11~~, in which the DNA construct is in a vector, in particular a plasmid or virus.

13. A process ~~according to any one of claims 1 to 12~~, in which the transformation of the plant cell is carried out by means of *Agrobacterium tumefaciens*,
5 a biolytic process, by means of electrically or chemically induced DNA absorption, electroporation, macroinjection, microinjection or PEG-mediated transformation.

14. A process for producing sequences containing invertase inhibitor cDNA in a sense orientation or antisense orientation in a vector, and comprising the following steps:

- 10 a) producing an inhibitor protein fraction from the cell wall protein fraction of a cell suspension culture or from flowers with young ovules,
b) production of corresponding peptide sequences after separation and purification of the peptide formed,
c) cloning firstly partial cDNA and subsequently full-length cDNA for the invertase
15 inhibitor protein from a cDNA bank, in particular from flowers with young ovules and
d) cloning of the invertase inhibitor cDNA in a sense orientation or antisense orientation in a vector, particularly a binary vector.

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15. A transgenic plant which can be produced according to ~~any one of the processes of claims 1 to 13~~, as well as a part thereof.

20 16. Propagating and cropping material of a plant according to claim 15.

17. Propagating and cropping material of a transgenic plant according to Claim 16, which propagating and cropping material is fruit, seed, seed husk, embryo, seedling, callus tissue, cell culture, stem, leaf or root.

18. Application of a functional nucleotide sequence of an invertase inhibitor
25 gene bound to at least one regulatory unit for the transformation and production of transgenic plants, which have a modified seed development as a result of the transformation.

19. An application according to claim 18, whereby the modified seed development is a seed development in accordance with which the seeds of the
30 transgenic plant have an increased amount of reserve material in comparison with seeds of an untransformed wild-type plant.

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20. An application according to ~~either one of claims 18 and 19~~, whereby the nucleotide sequence comes from, or is derived from, a cDNA bank from flowers with young ovules of the plant type or variety to be transformed.

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21. An application according to ~~any one of claims 18 to 20~~, whereby the nucleotide sequence is in an antisense orientation to at the very least one regulatory unit, in particular the promoter.

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